

- Fig. 2. Showing the appearance of the *Amœba* when moving slowly, the villi being employed as organs of prehension.
- Fig. 3. The same, when advancing energetically, the villous patch being aggregated into a subspherical tuft, and the contractile vesicle and nucleus now sharing in the general protoplasmic circulation.
- Fig. 4. A specimen with two large *Pinnulariæ* in its interior, the upper of the two frustules being enclosed within a large vacuole.
- Fig. 5. A specimen in which the villous patch has assumed a brush-like shape, and is supported on an elongated pedicle of sarcode; 5x, an enlarged view of this tuft and its supporting pedicle.
- Fig. 6. Enlarged view of granular nucleus, nucleolus, and the nuclear vesicle or cavity.
- Fig. 7. Contractile vesicle, showing appearance of reticulation.

BIBLIOGRAPHICAL NOTICES.

The Land and Freshwater Mollusks indigenous to, or naturalized in, the British Isles. By LOVELL REEVE, F.L.S. Reeve & Co., 1863.

ONLY a few months have elapsed since we had occasion to notice the publication of the first volume of a new work by Mr. Jeffreys, on *British Conchology*, which treats of the Inland Mollusca; and already another handbook on the same subject lies upon our table.

The valuable illustrated works on 'Conchology' by Mr. Reeve are well known, and more especially his splendid '*Conchologia Iconica*;' but, until we read the announcement of the intended publication of the work which we are about to review, we were not aware that the author had paid any special attention to the Mollusca of our Islands. We cannot therefore expect to find in this volume the same mass of interesting detail which long years of patient and special study have enabled Mr. Jeffreys to condense in the pages of '*British Conchology*.' On the other hand, however, '*The Land and Freshwater Mollusks*' is more fully illustrated, and the woodcuts of all the species offer an attraction which Mr. Jeffreys's volume does not possess.

The animals are engraved by Mr. O. Jewett, some from original drawings, while others are reproductions of previously published figures. The original drawings from the life, which may be recognized by Mr. Jewett's autograph, are admirable. We were not previously acquainted with this artist's name as a natural-history draughtsman; but such life-like and characteristic figures as those of *Limax Sowerbyi*, *flavus*, and *cinereus*, *Helix aspersa*, *Planorbis corneus*, *Paludina contecta*, *Dreissena polymorpha*, *Anodonta cygnea*, and *Unio tumidus* raise him to a high position among delineators of Mollusca. Unfortunately the same praise cannot be bestowed on Mr. Sowerby's figures of the shells; for while the woodcuts of the larger species are generally good, no trouble appears to have been bestowed upon the smaller and closely allied species; and thus in those very instances where accurate illustrations were most desirable and would have been of most value, we meet with engravings which are not only worthless, but calculated to mislead.

We may mention, as examples of this carelessness, all the *Zonitæ*, but especially *crystallinus*, *Helix pulchella*, *rupestris*, *pygmæa*, *rotundata*, &c.

It is with much regret that we notice the numerous changes in nomenclature which Mr. Reeve seeks to introduce, changes in almost every instance uncalled for, in many cases actually wrong. Obsolete names, originally appended to descriptions of Mollusca so loosely and inaccurately defined as to apply with equal truth to many species, are here dragged forward from their merited oblivion, and made to supersede names which have been familiar to European conchologists for the last half-century. It is impossible to criticise all the changes thus made; but let us examine those that are introduced into a single genus: let it be *Planorbis*.

Planorbis imbricatus is changed to *Planorbis crista*, on the authority of the following synonymy:—

Nautilus crista, Linnæus (1758), Syst. Nat. 10th edit. p. 709.

Turbo nautilus, Linnæus (1767), Syst. Nat. 12th edit. p. 1241.

And the author remarks—"It may be observed on reference to the synonymy, that Linnæus made two species of this." But Linnæus did not make two species out of *Planorbis nautilus*. The facts are that he described *Nautilus crista* in the tenth edition of the 'Systema Naturæ;' and in the twelfth edition changed the name of the species to *Turbo nautilus*, and referred to his *Nautilus crista* of the tenth edition as a synonym. We can only account for Mr. Reeve's mistake by supposing that he has never consulted the twelfth edition—a supposition which is confirmed by the fact that throughout his volume the tenth edition is almost invariably referred to. It is the twelfth, however, which embodies the most matured views of the great naturalist, and has therefore always been justly held to be the standard edition of his works; and it is for this reason that the name *nautilus* has universally been adopted. Few of Linnæus's species are identified moreover with the same degree of certainty as this little shell; for specimens are still to be seen in the Linnæan cabinet enclosed in a small paper envelope on which the name is written at full length.

Planorbis marginatus (Drap.) is changed to *P. complanatus* (L.). Yet no one, from Linnæus's time to our own, has been able to say to what species the brief description of *Helix complanata* was intended to apply. Müller, in his description of *Planorbis umbilicatus* (*P. marginatus*, Drap.), wrote in 1773 (only six years after the publication of 'Syst. Nat.' 12th edit.), "Satis diu hæsito an hic *Planorbis* Linnæi, an *complanatus* auctorum dicatur, et descriptiones me dubium adhuc relinquunt; quid quod, hunc et *Planorbem* confudisse videntur, et sequens forte erit eorum *complanatus*. In tantis difficultatibus has tricas solvendi, ipso Linnæo litteris frustra consulto. *Planorbem* et *complanatam*, nomina generi toti propria, oblivioni dandos, descriptiones et nomina aptiora magisque significantia effingenda reor." And again, in the description of *Planorbis nitidus*, the same author observes, "An *H. complanata* Linnæi, haud liquet." Mr. Hanley, in his 'Ipsa Linnæi Conchylia,' expresses his belief

that Linnæus included both *Planorbis carinatus* and *marginatus* under the name *Helix planorbis*, and that *Helix complanatus* is synonymous with *Planorbis nitidus*, Müller. “‘Deorsum carinata,’” he observes, “is equally applicable to *nitidus*” as to *marginatus*; “whilst ‘supra convexa—subdiaphana—apertura semicordata’ (Fauna Suecica) is much more critically correct when affirmed of that little shell than of its larger rival; and as ‘parva admodum’ is applied to it in the ‘Fauna Suecica,’ in the contrast of its features with those of the preceding species, I feel no hesitation in asserting the identity of *nitidus* with the Linnæan *Helix*.” Surely Müller was right, when he said of such names (impossible to be identified with the species they were intended to represent), “oblivioni dandos reor.”

The chief confusion, however, which Mr. Reeve introduces into the genus *Planorbis* is by his adoption of the views of Moquin-Tandon respecting the *Planorbis nitidus* of Müller. That name is here applied to *Planorbis (Segmentina) lineata* (Walker); while the shell which has hitherto been known to British conchologists as *Planorbis nitidus* is called *P. fontanus* (Lightfoot). Now, on what grounds is this change made? Müller’s description of the species in his ‘Historia Vermium’ is very full, and agrees most accurately with *P. fontanus* until we reach, at the end, this sentence, “Ultra quinquaginta examini subjeci, quorum quidam strigis duabus ligamentorum instar in superna parte extimæ spiræ, forte ex restauratione fractæ testæ, notantur.” Now what does this sentence prove, but that the majority of the shells he examined were *Planorbis fontanus*? to which species therefore his name should be applied. It is quite possible, though far from certain, that the author confused the two species, and that “quidam strigis duabus ligamentorum instar” has reference to specimens of *P. lineatus*; but such specimens were described as the variety, while *P. fontanus* is clearly the type of the species. And this becomes more evident when we find all allusion to the variety omitted in the subsequently published ‘Zoologiæ Danicæ Prodromus,’ the description in which work applies only to the type.

Mr. Reeve describes 128 species. His estimate of our land and freshwater Mollusca differs from that of Forbes and Hanley in the omission of *Helix aperta*, and the addition of *Testacella Maugei*, *Vertigo Moulinsiana*, *Conovulus Myosotis*, *Cyclas pisidioides* and *C. ovalis*. And as compared with the species described in Jeffreys’s work, we find *Anodonta anatina* and *Pisidium roseum* omitted, and *Testacella Maugei*, *Pisidium obtusale*, *Casertanum (cinereum)* and *Henslovianum*, and *Cyclas pisidioides* added. Moreover Jeffreys considers that *Hydrobia ventrosa* has a claim to be inserted as a freshwater shell. But Reeve denies the species a place; while, on the other hand, he admits the *Conovuli* and *Assiminia Grayana*, which are rejected by the former author.

Mr. Reeve gives a map, in which, by a deeper or lighter tint of colour, it is intended to show the boundary of the Caucasian province of Mollusca, over which the British species range, and to indicate the part in which the most characteristic of the genera and species

congregate. Two tables also show the distribution, in Great Britain and abroad, of the several genera and species; and a short chapter on the "Distribution and Origin of Species" concludes the volume.

Geological Observations in South Australia; principally in the District south-east of Adelaide. By the Rev. JULIAN EDMUND WOODS, F.G.S., &c. 8vo. Longman, 1862.

"EVERY country has its history, not alone the history of what its inhabitants said and did, nor how its people lived, conspired, quarrelled, fought, and died, but a history which stretches further back and is buried in more remote antiquity. If it had not been so, Australia might indeed be counted the youngest as well as the least interesting of continents. She has had no people that could describe her vicissitudes, and there are no monuments left to chronicle her changes; but yet her history is written in an imperishable record. Of old, when the first explorers came upon the coast of a newly discovered territory, the rocks, the trees, the soil, and the verdure only spoke to them of one thing, namely, of fertility, or richness, or special adaptation to the wants of man. But now the very coast-line tells much more. Not only is the fertility or barrenness of the place itself told by the rocks, but the explorer is able to guess how far these appearances extend, and whether the country is likely to be fitted for human requirements in the present state of civilization."

These are our author's preliminary observations in his Chapter II.; and he follows them up, 1stly, by pointing out the evidences of former and different physical conditions presented by the existing geographical features of Australia generally; 2ndly, by giving in detail an account of the limestone-beds that form the plains of a great part of Southern Australia, and perhaps of Tasmania, describing their probable origin in a sea occupied by reefs of Bryozoa, as some seas now are by corals; 3rdly, by treating of the extinct volcanos of Mount Gambier and its vicinity, and of their individual and general history; 4thly, by describing the caverns in the limestone of the district under notice, and the underground drainage in connexion therewith.

The conclusions that the author draws from his observations on the geology of the colony are as follows:—

"I. There has been in Australia an immense area of subsidence during the Pliocene period, at a time when Rome, parts of Italy, Vienna, and parts of Austria, Piedmont, and Asia Minor were under the sea. II. This subsidence was accompanied by a [moss-] coral formation, very similar to the subsiding area of the Pacific at the present time; and although all the appearances are those of a reef of true zoophyte corals, the predominant fossil is a massive *Cellepora*, while true corals are rare. III. This gives rise to the suspicion that *Bryozoa* may build reefs and atolls, as well as true Corals. IV. That the subsidence ceased; and probably about that time volcanic disturbance commenced, and gave rise to submarine craters. V. That, after the cooling of the lava from these submarine craters, a deposit of small fragments of shells was thrown down from an ocean-current. VI.